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APHIDIDAE OF FORMOSA

PART 5

BY

RYOICHI TAKAHASHI

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APHIDIDAE OF FORMOSA, PART 5.

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RYOICHI TAKAHASHI

Since the publication of "the Aphididae of Formosa, part 4", the writer has published the following papers on these insects of our island:

The aphids of *Myzocallis* infesting the bamboo. Proc. Entom. Soc. Washington, vol. 28, no. 7, pp. 159–162, 1926.

Life history of *Macrosiphum formosanum* Takah. (In Japanese) Trans. Nat. Hist. Soc. Formosa, vol. 16, no. 86, pp. 184–192, 1926.

In the present paper the writer will record certain aphids collected in the island of Botel Tobago (Kotosho) which is located southeast of Formosa, about 45 miles distant from the most southern portion of the latter, and will also describe the following species from our island:

Macrosiphum clematidis n. sp.
M. rubiformosanum n. sp.
Matsumuraja rubicola n. sp.
Anuraphis lanigera n. sp.
A. formosanus n. sp.
Drepanaphis sauteri n. sp.
Myzocallis insularis n. sp.
Longistigma liquidambarus Takah.
Lachnus niitakayamensis Takah.
Nippolachnus piri Mats.
Oregma keitoensis n. sp.
Tetraneura sp.

Of these insects the last one attacks the root of the sugar cane, causing great damage in the eastern part of the island.

The type specimens dealt with in the present paper are preserved in the Entomological Laboratory of our Department. All the figures accompanying this paper were made by the writer.

The writer wishes here to express his sincere thanks to Dr. T. Shiraki for his kind help in preparing this paper and also to Prof. Dr. K. Oshima, Director of the Department of Agriculture, and Prof. S. Isshiki for their kindness in publishing this paper.

Macrosiphum clematidis n. sp.

(Pl. I, A, figs. 4–6)

Macrosiphum sp., Takahashi, Aphididae of Formosa, part 3, p. 19, pl. I, A (1924).

Winged viviparous female

Green. Eyes brown. Antennae black except at the base of the 3rd joint and on the basal 2 dusky joints. Mesothorax slightly pale brownish. Wings hyaline, veins blackish, stigma gray. Abdomen without markings. Cornicles black, with the basal parts green. Cauda green. Legs yellowish brown, black on the distal halves of femora, apices of tibiae, and tarsi.

Head provided with 8 moderately long setae on the dorsum. Frontal tubercles large, slightly convex and somewhat longer than the 2nd antennal joint on the inner side which is furnished with a rather long seta. Eyes rather small. Antennae long and slender, with some short stout setae, some of which are slightly capitate; the 1st joint very large, almost twice as long as the 2nd, somewhat angulated on the inner side; the 3rd provided with about 45 rather small circular sensoria not arranged in a single row almost over the whole length; the 4th imbricated, lacking sensoria; basal part of the 6th almost as long as the basal 2 joints taken together; the relative length of joints about as follows: III–76, IV–65, V–58, VI–107(16+91). Rostrum almost reaching the middle coxae. Abdomen with some moderately long setae on the dorsum. Fore wings: veins rather stout; the 1st oblique almost straight, the 2nd slightly curved, the 3rd twice forked, the upper branch extending to the apex of the wing; stigmatic vein moderately curved; hind wings with 2 obliques; hooklets 3. Cornicles very long, cylindrical, expanded on the base, a little narrowed near the apex, scarcely curved, faintly imbricated, distinctly reticulated on the distal one-sixth, more than twice as long as the cauda, almost as long as the 4th antennal joint. Cauda long, stouter than the cornicle, tapering, rounded at the apex, about 2.7 times as long as wide, much longer than the basal part of the last antennal joint, with about 11 very long bristles. Gonapophyses 3, of which the middle is much smaller. Legs long and slender, with many moderately to rather long setae; hind tarsi slightly longer than the 2nd antennal joint.

Length of body—about 3.0 mm. Antenna—about 5.5 mm.

Fore wing—about 4.0 mm. Cornicle—about 1.0 mm.

Host.—*Clematis gouriana*, attacking the lower side of the leaf.

Distribution.—Formosa: Taihoku, Batoran in Karenko-prefecture.

A small, almost circular, transparent area is visible about the middle of the 2nd antennal joint in specimens treated with caustic potash.

This species is distinguishable from *Macrosiphum clematifoliae* Shinji (Dobutsugaku Zasshi, Tokyo, XXXVI, p. 361) by the number of the antennal sensoria. The long cornicles of *Macrosiphum neoartemisiae* Takah. (Aphididae of Formosa, part 1, p. 13) resemble those of *M. clematidis*, differing, however, from the latter in the following characters:

(1) Not reticulated nor imbricated on the distal portion.
(2) Slightly dilated on the distal portion.
(3) Without flange at the tip.
(4) Somewhat curved.

Macrosiphm rubiformosanum n. sp.

(Pl. II, B, figs. 6–8)

Macrosiphum rosae L. ?, Takahashi, Aphididae of Formosa, part 2, p. 13 (1923).

Winged viviparous female

Green. Head and thorax somewhat brownish. Antennae dusky. Abdomen without patches. Cornicles black. Cauda green.

Head with about 10 moderate to rather long setae on the dorsum, which are much shorter than the 2nd antennal joint. Frontal tubercles somewhat convex on the inner side. Antennae long and slender, provided with some moderately long stout setae; the 3rd joint with about 40 circular sensoria scattered almost over the entire length except on the basal and distal parts, somewhat imbricated on the base; the 4th imbricated, without sensoria; the relative length of joints about as follows: III–65, IV–55, V–48, VI–11+about 70. Rostrum reaching the middle coxae. The 1st oblique on the front wing slightly curved, the 2nd almost straight, the 3rd twice branched, the upper branch extending to the apex of the wing; stigmatic vein somewhat strongly curved;hind wings with 2 almost parallel obliques, hooklets 4. Abdomen with some moderate to rather long setae on the dorsum, but with many on the ventral surface. Cornicles long and slender, cylindrical, slightly expanded towards the base, straight, almost as stout as the tibia on the distal part, imbricated on the distal part, a little reticulated on the apex, almost as long as the 5th antennal joint, about twice as long as the cauda, with a flange at the tip. Cauda rounded at the apex, with 3 pairs of lateral, and an apical, long bristles. Legs long and slender, with

many rather long stout setae; hind tarsi almost as long as the basal part of the last antennal joint.

Length of body—about 2.8 mm. Antenna—about 4.5 mm.
Cornicle—about 0.75 mm. Fore wing—about 4.3 mm.

Host.—*Rubus* sp.

Distribution.—Formosa: Kanshirei, Batoran in Karenko-prefecture, Hakumo in Taichu-prefecture, Taihoku.

This species is rare, occuring in small numbers, and I have collected only two alate and some apterous forms in the last 6 years. This aphis is apparently different from *Macrosiphum rubiellum* Theob. and *M. rubifolium* Theob. and is also distinct from the description of *M. rubifoliae* Shinji. *M. kamtshaticum* Mord. seems to be related to this species.

Matsumuraja rubicola n. sp.

(Pl. I, A, fig. 7, Pl. I, B, figs. 6–11 & Pl. II, A, figs. 1–2)

Wingless viviparous female

Yellow. Body oblong, with many tubercles and projections each bearing a capitate hair on the dorsum. Head granular on the surface, provided with 8 moderately long capitate hairs each arising from a small tubercle on the dorsum and 2 similar hairs at the middle of the front, of these hairs those on the front somewhat longer. Frontal tubercles distinct, slightly shorter than the 2nd antennal joint, the inner side moderately convex, furnished with 2 capitate hairs that are somewhat longer than those on the dorsum of the head, but slightly shorter than the 2nd antennal joint. Eyes outstanding, with distinct ocular tubercles. Antennae dusky at the apices of the 3rd, 4th and 5th joints and on the 6th except on the middle portion; the lst joint on the inner side with a projection which is almost as long as or slightly longer than the 2nd antennal joint, with a few capitate hairs that are as long as those on the dorsum of the head; the 2nd with 4 similar hairs; the 3rd imbricated, almost as stout as the basal part of the front tibia, provided with a few short capitate setae, without sensoria; the 4th imbricated, with a few similar setae, without sensoria; basal part of the 6th longer than the lst; the relative length of joints about as follows: III—77, IV—56, V—52, VI—136 (28+108). Rostrum rather stout, reaching the middle coxae. Pronotum with 2 small tubercles at the middle near the hind margin, a similar one on the side and 4 smaller ones near the front margin. Meso- and metathoraci each with about 4 tubercles, of which the middle 2 are a little larger,

arranged in a transverse row at the middle of the dorsum, and 2 similar ones on the side. Basal 5 abdominal segments each with 4 or 6 tubercles or projections on the dorsum and one on the side, of which the middle 2 projections and the one on the side are longer; and those on the hinder segments longer, almost as long as the 1st antennal joint. The 6th and 7th abdominal segments each with 6 tubercles or projections on the dorsum, of which the middle 2 projections are much longer, cylindrical, slender, variable in length, sometimes as long as the 5th antennal joint; these projections on the 7th somewhat longer than those on the 6th. Projections on the thorax and abdomen not smooth on the surface, variable in length, rounded at the apex, mostly with a rather short or moderately long capitate hair at the apex. Cornicles dusky at the apex, long, cylindrical, expanded at the base, straight or somewhat curved, stouter than the tibia, imbricated, not reticulated, nearly as long as the distal part of the 6th antennal joint, about thrice as long as the cauda. Cauda large, stout, stouter than the cornicle, broadest at the base, tapering, about 1.5 times as long as wide, with 2 pairs of long lateral bristles. Legs long, tibiae stouter than the projection on the abdomen, provided with many rather short not capitate setae; hind tarsi a little shorter than the basal part of the 6th antennal joint.

Length of body—about 1.8 mm. Antenna—about 1.8 mm.

Cornicle—about 0.5 mm.

Winged viviparous female.

Green. Head, antennae and thorax black. Abdomen with a very large black patch on the dorsum. Cornicles and cauda dusky. Wings hyaline, scarcely clouded along the 1st oblique on the front wing, stigma black. Head with 8 very short not capitate hairs not arising from tubercles on the dorsum. Frontal tubercles very short, scarcely convex on the inner side. Eyes large. Antennae with a few short setae; the 1st joint on the inner side with a short blunt tubercle that is shorter than the 2nd antennal joint, provided with 2 not capitate setae at the apex; the 3rd not imbricated, stout, stouter than the front tibia, furnished with about 32—36 moderate to rather large circular or oval sensoria scattered over the entire length; the 4th imbricated, with 14—17 similar ones over the whole length not arranged in a row; the 5th with 4—7 similar ones; the relative length of joints about as follows: III—83, IV—56, V—55, VI—150 (30+120). Rostrum reaching the middle coxae. Thorax without tubercles. Abdomen with a few very short not capitate setae arranged in a transverse row on the dorsum of the segment; the 6th segment at the middle of the dorsum with a pair of very small tubercles; the 7th at the middle of the dorsum

usually with a pair of small projections which are shorter than the 2nd antennal joint, not expanded towards the base, rounded and furnished with a short seta at the apex. Cornicles almost as stout as the 3rd antennal joint, not curved, somewhat expanded at the base and on the distal half, faintly imbricated, not reticulated and scarcely imbricated on the distal portion, almost as long as the 3rd antennal joint, about 4 times as long as the cauda. Cauda very stout, broadest at the base, tapering, almost as long as wide, with 2 pairs of lateral long bristles on the distal part. Legs long and slender, tibiae with many moderately long not capitate setae; hind tarsi slightly shorter than the basal part of the 6th antennal joint. Wing veins stout; the lst and 2nd obliques somewhat curved, the 3rd normal; hind wings with 2 obliques; hooklets 3 or 4.

Length of body—about 1.9 mm. Antenna—about 1.8 mm.

Cornicle—about 0.4 mm.

Host.—*Rubus sp.*

Distribution.—Formosa: Batoran in Karenko-prefecture.

Many winged and wingless viviparous females were collected by the author on November 15, 1925. This species is distinctly different from other species of the genus.

Anuraphis formosanus n. sp.

(Pl. II, B, figs. 1—3)

Wingless viviparous female.

Dark green. Head, antennae, cornicles and cauda black. Femora, distal parts of tibiae, and tarsi dusky. In specimens treated with caustic potash many small dusky patches visible on the side and the distal half of the dorsum of abdomen. Body reticulated and scarcely provided with hairs on the dorsum. Head rather small, with 10 moderately long setae on the dorsum. Eyes rather small. Frontal tubercles absent. Antennae much shorter than the body, slightly longer than the hind tibia, roughly imbricated, with a few setae; the 3rd joint with 0—5 small circular sensoria arranged in a row mostly on the distal half; the 4th without sensoria; the relative length of joints about as follows: III—54, IV—22, V—23, VI—50 (25+25). Rostrum rather stout, reaching to or beyond the hind coxae. Prothorax and the 1st and 7th abdominal segments with a short blunt tubercle on the side. Cornicles short, somewhat narrowed towards the apex, with a flange at the tip, about 1.5 times as long as wide, somewhat corrugated on the surface, almost as

long as the 4th antennal joint, somewhat shorter than the hind tarsi. Cauda conical, rounded at the tip, almost as long as wide, a little longer than the basal part of the 6th antennal joint, about 1.5 times as long as the cornicle, with many very long lateral hairs. Legs with many moderately long setae.

Length of body—about 1.8 mm.

Winged viviparous female.

Dark green. Head, thorax, antennae, cornicles and cauda black. Legs mostly black, brownish on the middle parts of tibiae. Abdomen with 3 large and some small dusky spots on the side in specimens treated with potash. Body reticulated and scarcely provided with hairs on the dorsum. Antennae roughly imbricated, with a few short setae; the 3rd joint with 6—8 circular sensoria of medium or rather small size mostly in a row on the distal half; the 4th with 0—1 sensorium near the apex; the relative length of joint about as follows: III—45, IV—20, V—20, VI—46 (23+23). Rostrum reaching beyond the hind coxae. Prothorax and the 1st and 7th abdominal segments with a small blunt tubercle on the side. The 1st and 2nd obliques on the front wing slightly curved, the 3rd twice forked, the upper branch extending to the apex of the wing; stigmatic vein moderately curved; hind wings with 2 somewhat divergent obliques; hooklets 3. Cornicles short, about 1.5 times as long as wide, slightly narrowed towards the apex, with a flange at the tip, somewhat shorter than the hind tarsi, nearly as long as the 4th antennal joint. Cauda conical, very slightly longer than wide, a little longer than the cornicle, almost as long as the basal part of the last antennal joint, with many long bristles. Legs with many moderately long setae; hind tarsi almost as long as the cauda.

Length of body—about 1.75 mm. Antenna—about 0.85 mm.

Fore wing—about 2.5 mm.

Host.—*Blumea balsamifera* L.

Distribution.—Formosa: Hakumo in Taichu-prefecture.

Many winged and wingless viviparous females were collected by the author on November 11, 1926. This species is peculiar in that the distal part of the 6th antennal joint is equal in length to the basal part, as well as in possessing sensoria on the 3rd antennal joint in some apterous specimens.

Anuraphis lanigera n. sp.

(Pl. II, B, figs. 4—5)

Wingless viviparous female

Brownish green, densely covered with a white powder. Cornicles black. Cauda dusky. Body oval, with a few bristles on the dorsum, lacking distinct tubercles on the side. Head with a few bristles on the dorsum, which are shorter than the 2nd antennal joint. Eyes rather small, slightly protruding. Frontal tubercles almost absent, but somewhat developed on the inner side. Antennae imbricated, with some moderately long setae; the 3rd joint without sensoria; the relative length of joints about as follows: III—100, IV—55, V—45, VI—80 (25+55). Rostrum stout, reaching beyond the middle coxae. Cornicles cylindrical, stout, gradually expanded towards the base, imbricated, not reticulated, longer than the 4th antennal joint, about 3 times as long as the cauda, about 2.5 times as long as wide, with no flange at the tip. Cauda short, conical, almost as long as wide, rounded at the tip, with some long bristles. Legs rather long, with many moderate to rather long setae; hind tarsi a little longer than the basal part of the 6th antennal joint.

Length of body—2.0 mm. Antenna—about 1.7 mm.

Cornicle—about 0.27 mm.

Host.—*Stauntonia hebandra*, attacking the young stalk.

Distribution.—Formosa: Suisha in Taichu-prefecture.

This species is peculiar in being densely covered with a white powder, as well as, in the long cornicles, and resembles *Aphis smilacifoliae* Takah.(Aphididae of Formosa, part 1, p. 49) in general appearance, but is easily distinguishable from it by the shape of the cauda. Some apterous forms were collected by the author on November 13, 1926.

Drepanaphis sauteri n. sp.

(Pl. I, A, figs. 1—2)

Winged viviparous female.

Green. Head yellowish. Eyes red. Antennae mostly black, brownish on the distal half of the 3rd joint (except on the apex black) and bases of the 4th and 5th joints. Mesothorax yellowish brown. Fore wings a little clouded along the basal parts of the 1st and 2nd obliques and broadly so along the stigmatic vein and the branches of the 3rd oblique; stigma black; veins yellowish brown; hind wings hyaline. Abdomen without markings. Cornicles yellowish brown, with black apices. Cauda green. Legs mostly yellowish brown.

Head on the dorsal side provided with 3 pairs of stout bristles which are longer than the 2nd antennal joint, each arising from a very small tubercle. Frontal tube-

rcles distinct, the inner side almost straight, a little longer than the 2nd antennal joint, with a long stout bristle. Eyes with moderate ocular tubercles. Antennae very long and slender, with some short setae; the 1st joint much larger than the 2nd, angulated on the inner side; the 3rd somewhat swollen on the basal half, provided with about 35 sensoria which are transversely narrowed or oval in shape, not protuberant, moderate to rather small in size, and arranged in a row on the basal half; the 4th somewhat striate, lacking sensoria; the 5th imbricated; the relative length of joints about as follows: III—98, IV—84. V—80, VI—85 (35+50). Rostrum short, not reaching the middle coxae. Thorax and abdomen provided with some long stout bristles, some of which are longer than those on the head. Fore wings narrow; the 1st oblique very slightly curved, the 2nd almost straight, the 3rd twice branched, the lower branch extending to the apex of the wing, stigmatic vein long, somewhat curved; stigma large; hind wings with 2 parallel obliques; hooklets 5. Cornicles large, stout, slightly curved, dilated towards the base, almost as stout as the hind femur, not imbricated, a little reticulated on the distal portion, a little longer than the basal part of the 6th antennal joint. Cauda constricted, with some very long bristles. Anal plate moderately indented, each lobe wider than the cauda, with some similar hairs. Legs long and slender, femora with some moderately long setae; front femora much stouter than other femora; tibiae provided with some rather long setae, covered with numerous short setae except on the basal part; hind tarsi much shorter than the basal part of the 6th antennal joint.

Length of body—about 4.5 mm. Antenna – about 6.1 mm.
Fore wing—about 5.2 mm. Cornicle – about 0.65 mm.

Host.—*Acer sp.*

Distribution.—Formosa: Batoran in Karenko-prefecture.

Many winged forms were collected by the author on November 14, 1925. The adults have the habit of jumping from the host when disturbed.

This species is easily distinguishable from other species of the genus by the number of the sensoria on the 3rd antennal jont. The genus *Drepanaphis* is new to Formosa, as well as to the Oriental Region. This aphis has been named after Mr. Hans Sauter, whose work in Formosa has added so much to our knowledge of the zoology of the island.

Myzocallis insularis n. sp.

(Pl. II, A, figs. 5—7)

Winged viviparous female.

Head, thorax and abdomen greenish yellow. Antennae white, blackish on the apices of the 3rd, 4th and 5th joints and on the 6th except on the basal portion. Eyes dark brownish or greenish. Abdomen with a pair of minute dusky spots on each of the 3rd and the following segments. Cornicles and cauda yellowish. Wings hyaline, very slightly clouded at the apices of veins; stigma almost hyaline; veins slightly pale brownish. Legs white or pale yellowish. Body oblong, scarcely provided with hairs. Head wanting hairs, with a very small blunt tubercle at the middle of the front and a pair of similar, but smaller, tubercles between the antennae (near the front). Eyes large, with moderate ocular tubercles. Frontal tubercles absent. Antennae slender, without hairs; the 1st joint a little larger than the 2nd; the 3rd shorter than the front tibia, imbricated on the distal part, slightly expanded on the basal half, provided with 7 or 8 transversely narrowed sensoria which are not occupying half the circumference of the segment, arranged in a single row on the basal half; the 4th imbricated, without sensoria; the relative length of joints about as follows: III—70, IV—45, V—44, VI—48 (27+21). Rostrum not reaching the middle coxae. Abdomen with 3 small blunt tubercles on the side and 2 pairs of distinct tubercles, of which the hind pair is a little larger, at the middle of the basal part of the dorsum; these dorsal tubercles expanded towards the base, a little longer than the 1st antennal joint, with a very short seta at the apex; the 3rd and the following segments each with a pair of minute dusky tubercles on the dorsum, which are provided with a short seta. Cornicles somewhat wider than long, expanded towards the base, almost as long as, but not so wide as, the lobe of the anal plate. Anal plate bilobed, with some very long bristles. Cauda almost as wide as the lobe of the anal plate, constricted, with some very long bristles. Fore wings: the 1st oblique somewhat curved; the 2nd distinctly curved near the base; the 3rd obsolete at the base, twice branched, the upper branch extending above the apex of the wing; stigmatic vein obsolete on the basal half; hind wings with 2 nearly parallel or slightly divergent obliques; hooklets 2. Legs slender; tibiae stouter than the 3rd antennal joint, with many moderately long hairs on the distal half; hind tarsi almost as long as the apical part of the last antennal joint.

Length of body—about 1.6 mm. Antenna—about 1.1 mm.

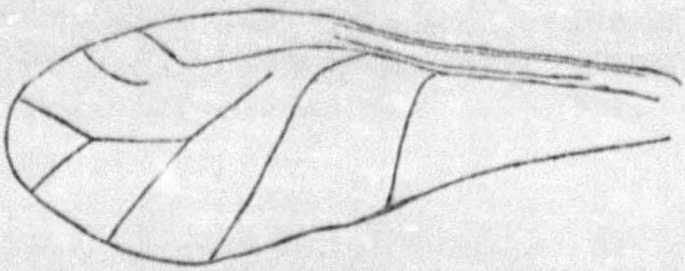
Fore wing—about 1.8 mm.

Host.—*Sapindus mukorossi*.

Distribution.—Formosa: Taihoku.

Many winged viviparous females were collected on the lower sides of the leaves

in June 1926 by the author.



Fore wing of *Myzocallis insularis*.

Longistigma liquidambarus Takah.

(Pl. II, A, fig. 3)

Dilachnus liquidambarus, Takahashi, Aphididae of Formosa, part 4, p. 42 (1925).

Wingless viviparous female.

Head, eyes, antennae, thorax, tibiae, tarsi, cornicles and cauda black. Abdomen black, somewhat brownish, with 3 rather small black patches on the side in front of the cornicle, slightly covered with powder. Front femora reddish brown, with the distal halves black; middle and hind femora reddish brown, with black apices.

Body oval, covered with many bristles. Head divided, with many long fine hairs, of which those on the front are somewhat longer, almost as long as the 2nd antennal joint. Eyes protruding, with ocular tubercles. 3 very small ocelli present. Antennae a little shorter than the front tibia, with many very long bristles which are almost as long as those on the front of the head, but are stouter; the 1st joint almost as long as the 2nd; the 3rd much more slender than the tibia, provided with 2—4 small circular sensoria arranged in a longitudinal row on the apical part; the 4th with 3 or 4 small to medium-sized circular sensoria; the 5th with 0—1 very small circular one near the usual large primary one; the relative length of joints about as follows: III—50, IV—22, V—22, VI—15. Rostrum reaching slightly beyond the hind coxae. Hairs on the abdomen similar to those on the antenna. Cornicles on elevated hairy cones. Cauda rounded. Legs long, stout, covered with long stout bristles; hind tibiae somewhat curved; hind tarsi longer than the 5th antennal joint, the 2nd tarsal joint slightly more than twice as long as the 1st.

Length of body—about 7.0 mm. Antenna—about 2.25 mm.

Hind tibia—about 5.7 mm.

Host.—*Liquidambarus formosana*.

Distribution.—Formosa: Taihoku, Nanto.

A few apterous and winged forms were collected in March 1926 at Taihoku. All the apterous specimens possess 3 very small ocelli and the winged forms are furnished with 9—15 sensoria on the 3rd antennal joint. The apterous form is hitherto undescribed.

Lachnus niitakayamensis Takah.

(Pl. I, A, fig. 3 & Pl. II, A, fig. 4)

Aphididae of Formosa, part 4, p. 36 (1925).

Wingless viviparous female.

Yellowish brown, blackish on the dorsum of abdomen. Antennae yellowish brown, with black apices. In specimens treated with potash, a few small dusky spots and patches visible on the dorsum.

Body oval, not elongate, covered with bristles. Head divided, with many hairs, of which those on the front are somewhat longer, almost as long as the 2nd antennal joint. Eyes with indistinct ocular tubercles. Antennae stout, slightly shorter than the hind tibia, with many hairs which are similar to those on the head; the 3rd joint lacking sensoria, but sometimes with 1 or 2 very small circular ones near the distal end; the 4th with a similar one near the apex; the 5th with a similar one at the middle, the primary sensorium not large, circular, not surrounded by a row of hairs; the 6th not striate, the sensorium not very large; the relative length of joints about as follows: III—105, IV—35, V—34, VI—47 (30+17). Rostrum reaching a little beyond the hind coxae. Hairs on the thorax and abdomen subequal in length to those on the head. Cornicles small, on small hairy cones. Cauda very short, broadly rounded, with many hairs. Legs large, stout, covered with many rather fine hairs; front tibiae longer and stouter than the 3rd antennal joint; hind tarsi slightly longer than the 6th antennal joint; the 2nd tarsal joint more than twice as long as the 1st.

Length of body—about 2.5 mm. Antenna—about 1.2mm.

Hind tibia—about 1.3 mm.

Host.—*Elaeagnus oldhami*, attacking the branch.

Distribution.—Formosa: Niitakayama, Domon in Karenko-prefecture.

In the winged viviparous female, head, antennae, thorax, legs and stigma on the wing black; abdomen dark yellowish brown, slightly covered with wax at the middle of the dorsum.

Some winged and wingless forms were found in small groups on November 13,1925, at Domon. The host plant previously unknown proved to be *Elaeagnus oldhami* Max. (Elaeagnaceae), but not a Conifer.

The apterous form is hitherto undescribed.

Nippolachnus piri Mats.

Jl. Coll. Agr. Sapporo, VII, pt. 6, p. 382 (1917); Takahashi, Proc. Ent. Soc. Washington, XXI, p. 175 (1919); Kurisaki, Dobutsugaku Zasshi (Zool. Mag. Tokyo), XXXII, p. 383 (1920); Takahashi, Aphididae of Formosa, part 2, p. 141 (1923).

Anoecia piri, Essig and Kuwana, Proc. Calif. Acad. Sc., 4th ser., VIII, 3, p. 108 (1918).

Host.—*Pirus serotina.*

Distribution.—Formosa: Hakumo in Taichu-prefecture, Japan.

Many apterous and alate viviparous females were collected on November 11, 1926, by the author at Hakumo where *Eriobotrya japonica*, the winter host, was also discovered.

The genus *Nippolachnus* Mats. is very peculiar in some characters, and I proposed a new subtribe, Nippolachnini, for it (Aphididae of Formosa, part 1, p. 80).

Oregma heitoensis n sp.

Oregma montana van der Goot ?, Takahashi, Aphididae of Formosa, part 4, p. 48 (1925).

The aphid recorded in my former report under the name of *Oregma montana* van der Goot? is not true *montana* van der Goot, but is apparently undescribed. This species is very closely allied to *O. montana* van der Goot, differing, however, from the original description of it in the following characters:

Wingless viviparous female.

(1) Body smaller, about 2.0 mm. in length.

(2) Never yellowish, almost brownish black, with a purplish tinge.

(3) Head provided with a pair of groups of small wax-pores; each group composed of 0—6 distinct wax-pores which are smaller than those on the thorax.

(4) wax-pores on the thorax well developed, almost as large as or slightly smaller than those on the abdomen.

(5) Wax-pores on the thorax more in number. The number of wax-pores in each group on the body about as follows:

(Dorsal wax-pores) Head—0...6, prothorax—6...10, mesothorax—7...13, metathorax—3...7, 1st abdominal segment—1...3, 2nd abd. seg.—2...4, 3rd abd. seg.2—...4, 4th abd. seg.—2...3, 5th abd. seg.—1...3, 6th abd. seg.—0...1, 7th abd. seg.—0, 8th abd. seg.—7...11 in a group at the middle.

(Lateral wax-pores) Head—0, prothorax—1...6, mesothorax—5...8, metathorax—2...5, 1st abdominal segment—3...4, 2nd abd. seg.—3...5, 3rd abd. seg.—5...6, 4th abd. seg.—5...8, 5th abd. seg.—3...6, 6th abd. seg.—5...7, 7th abd. seg.—6...8.

The winged form agrees almost exactly with the description of *montana*, but differs from it in the smaller body, measuring about 2.0 mm. in length.

Host.—*Bambusa stenostachya, Bambusa pachinensis, Arundinaria sp.*

Distribution.—Formosa: Heito, Tarowan near Musha, Tosei and Suisha in Taichu-prefecture, Kagi.

The relative length of antennal joints of the apterous form is about as follows: III—20...24, IV—15...16.

This species is also very closely related to *Oregma pseudomontana* Takah., from which it differs as follows:

(1) Head of the apterous form with smaller wax-pores.

(2) The 3rd antennal joint of the apterous form longer than the 4th (in *pseudomontana* the 3rd almost as long as the 4th).

(3) Winged form with a pair of very small horns on the head (in *pseudomontana* wanting horns).

(4) Antennae of the winged form stouter.

(5) The 3rd antennal joint of the winged form furnished with about 28 sensoria (in *pseudomontana* the 3rd joint with 22—24 sensoria).

(6) The 4th antennal joint of the winged form a little shorter than the 5th (in *pseudomontana* the 4th almost as long as the 5th).

Tetraneura species.

Wingless viviparous female

Pale yellowish brown. Body somewhat globular. Head indistinctly divided, provided with many setae which are shorter than the 1st antennal joint, usually with a pair of very small circular pores on the front and a pair of smaller ones between the antennae; the lower side with a pair of large oval pores near the front. Eyes very small, of a few facets. Antennae stout, almost as long as the hind tibia and tarsus (excluding the claws) taken together, 5-jointed, with many setae which

are as long as those on the head; the 3rd joint narrowed towrds the base, lacking sensoria; the 4th with a small circular sensorium surrounded by a row of setae; the 5th conical; the relative length of joints about as follows: I—18, II—25, III—33, IV—54, V—15. Rostrum very stout, almost reaching the hind coxae. Thorax and abdomen provided with many setae which are almost as long as those on the head. Pronotum with a pair of small circular pores at the middle which are somewhat larger than those on the head, and a very large oval pore on the side. Meso-and metathoraci each with 4 small circular pores arranged in a transverse row on the dorsum and a much larger one on the side. Abdomen with a few small circular pores on the dorsum and much larger ones on the side. Cornicles small, much wider than long, expanded towards the base, with a distinct flange. Cauda short, with some very long stout setae. Anal plate moderately indented, with some very long setae. Legs very stout, with many setae that are somewhat longer than those on the head; tibiae much stouter than the antenna, hind tibiae almost as long as the femur; tarsi unjointed, hind tarsi almost as long as the 1st antennal joint.

Length of body—about 2.8 mm. Antenna—about 0.8 mm.

Host.—*Saccharum officinarum*, attacking the root.

Distribution.—Formosa: Karenko.

Hitherto unrecorded from Formosa.

This species is very injurious to the sugar-cane in Karenko-prefecture. Some apterous forms were collected by the author in November 1925. The winged form is not known.

Some Aphididae of Botel Tobago.

In the first week of June, 1926, the author made a collecting trip to the island of Botel Tobago, which is located southeast of Formosa, about 45 miles distant from the most southern portion of the latter.

In Botel Tobago cultivated plants are very scarce in species, and moreover, some favourable hosts of certain aphids in other districts, such as *Acer*, *Alnus*, *Artemisia*, *Pinus*, *Psidium*, *Quercus*, *Salix*, etc. are entirely lacking, and the aphid fauna of the island is not rich, containing a few cosmopolites. A species of *Bambusa* grows there, but no species of *Oregma* or other genera were discovered on it. All the following species collected in Botel Tobago are known to occur in Formosa.

Macrosiphum formosanum Takah.

Host.—*Sonchus oleraceus.*

A few apterous viviparous females.

Macrosiphum gobonis Mats.

Host.—*Arctium lappa.*

A few winged and wingless viviparous females.

Myzus polypodicola Takah.

Host.—*Dryopteris parasitica.*

A few apterous females.

Myzus varians Davidson.

Host.—*Clematis sp.*

Two apterous females. No plants of *Prunus* grow on this island.

Pentalonia nigronervosa Cop.

Hosi.—*Musa textilis* var. *tashiroi.*

Some apterous females.

Aphis gossypii Glov.

Host.—*Colocasia kotoensis.*

Some apterous and alate females.

Aphis medicaginis Koch.

Host.—*Wikstroemia indica.*

A few winged and wingless females.

Aphis sp.

Host.—*Nauclea truncata.*

A few wingless females.

Aphis sacchari Zehnt.

Host.—*Miscanthus japonicus.*

A few wingless females.

Brachycolus heraclei Takah.

Host.—*Oenanthe stolonifera.*

A few apterous and some alate females.

Neophyllaphis podocarpi Takah.

Host.—*Podocarpus* sp.

A few apterous females.

Cerataphis lataneae Boisd.

Host.—*Cocos nucifera.*

Many apterous females and some nymphs of the winged form.

Oregma lanigera Zehnt.

Host.—*Miscanthus japonicus.*

Many viviparous females, both alate and apterous.

Astegopteryx sp.

Host.—*Ficus* sp.

Many apterous females.

Food plant catalogue of the Formosan Aphididae
(Supplement—3)

Acer sp. (Sapindaceae).
Drepanaphis sauteri Takah.

Arundinaria sp. (Gramineae).
Oregma heitoeusis Takah.

Bambusa pachinensis Hay. (Gramineae).
Oregma heitoensis Takah.

Bambusa stenostachya Haeg.
Oregma heitoensis Takah.

Bambusa sp.
Myzocallis taiwanus Takah.

Blumea balsamifera L. (Compositae).
Anuraphis formosanus Takah.

Clematis gouriana Roxb. (Ranunculaceae).
Macrosiphum clematidis Takah.

Elaeagnus oldhami Max. (Elaegnaceae).
Capitophorus braggii Gill.
Lachnus niitakayamensis Takah.

Eleusine indica Gaertn. (Gramineae).
Dryopeia hirsuta Baker.

Morus alba L. (Urticaceae).
Toxoptera aurantii Boyer.

Pirus serotina. (Rosaceae).
Nippolachnus piri Mats.

Portulaca oleracea L. (Portulacaceae).
Aphis gossypii Glov.

Rubus sp. (Rosaceae).

Macrosiphum rubiformosanum Takah.

Matsumuraja rubicola Takah.

Saccharum officinarum L. (Gramineae).

Tetraneura sp.

Sapindus mukorossi Gaert. (Sapindaceae).

Myzocallis insularis Takah.

Stauntonia hebandra Hay. (Berberideae).

Anuraphis lanigera Takah.

Styrax suberifolium Hook. et Arn. (Styraceae).

Toxoptera aurantii Boyer.

Correction

Myzocallis querciformosanus Takah.

Winged viviparous female.

There are some errors in the description of this aphis from Oi, Japan (Philippine Jl. Sc., XXIV, 1924, p. 713), and they are corrected as follows:

Capitate hairs on the pronotum as long as or shorter than those on the mesonotum. Capitate hairs on the apical part of the finger-like tubercle on the abdomen 2 in number, very short, much shorter than the hairs on the head and thorax. Cauda and anal plate with some long bristles. Abdomen with 3 pairs of finger-like tubercles, of which the anterior two pairs are a little shorter, subequal in size, almost as long as or slightly longer than the cornicle.

Explanation of plates.

Plate I

A

Drepanaphis sauteri n. sp.
(winged viviparous female)

Fig. 1.....Fore wing.
Fig. 2.....Cornicle.

Lachnus niitakayamensis Takah.
(winged viviparous female)

Fig. 3.....Cornicle (hairs removed).

Macrosiphum clematidis n. sp.
(winged viviparous female)

Fig. 4.....Basal joints of antenna.
Fig. 5.....Cauda.
Fig. 6.....Cornicle.

Matsumuraja rubicola n. sp.
(wingless viviparous female)

Fig. 7.....Frontal tubercle and basal joints of antenna.

B

Myzocallis sasae Mats.

Fig. 1.....3rd antennal joint of winged viviparous female.

Myzocallis taiwanus Takah.
(winged viviparous female)

Fig. 2.....3rd antennal joint.

Fig. 3.....Fore wing.
Fig. 4.....Cornicle.
Fig. 5.....Dorsal tubercle on abdomen.

Matsumuraja rubicola n. sp.
(wingless viviparous female)

Fig. 6.....Dorsal tubercles on the 6th and 7th abdominal segments.
Fig. 7.....Cornicle.
Fig. 8.....Cauda.

(winged viviparous female)

Fig. 9.....Basal part of antenna.
Fig. 10.....Tubercles on the 7th abdominal segment.
Fig. 11.....Cornicle.

Plate II

A

Matsumuraja rubicola n. sp.

(wingless viviparous female)

Fig. 1.....Tubercles on the side of basal abdominal segments.
Fig. 2.....Tubercles on the side of metathorax.

Longistigma liquidambarus Takah.

Fig. 3.....Distal part of fore wing (venation abnormal).

Lachnus niitakayamensis Takah.

Fig. 4.....Fore wing.

Myzocallis insularis n. sp.

(winged viviparous female)

Fig. 5.....3rd antennal joint.
Fig. 6.....Cornicle.
Fig. 7.....Dorsal tubercle on 2nd abdominal segment.

B

Anuraphis formosanus n. sp.

(wingless viviparous female)

Fig. 1.....Cauda.
Fig. 2.....Cornicle.
Fig. 3.....Antenna.

Anuraphis lanigera n. sp.

(wingless viviparous female)

Fig. 4.....Cornicle.

Fig. 5.....Frontal tubercle and basal antennal joint.

Macrosiphum rubiformosanum n. sp.

(winged viviparous female)

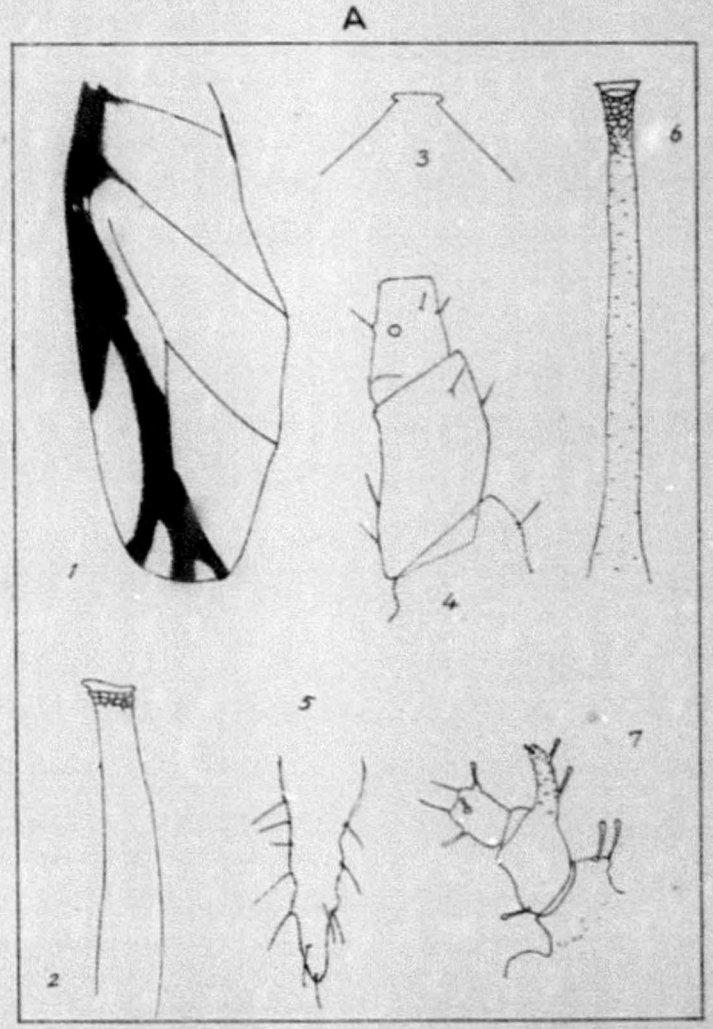
Fig. 6.....Cauda.

Fig. 7.....Cornicle.

(wingless viviparous female)

Fig. 8.....Cauda.

Plate I



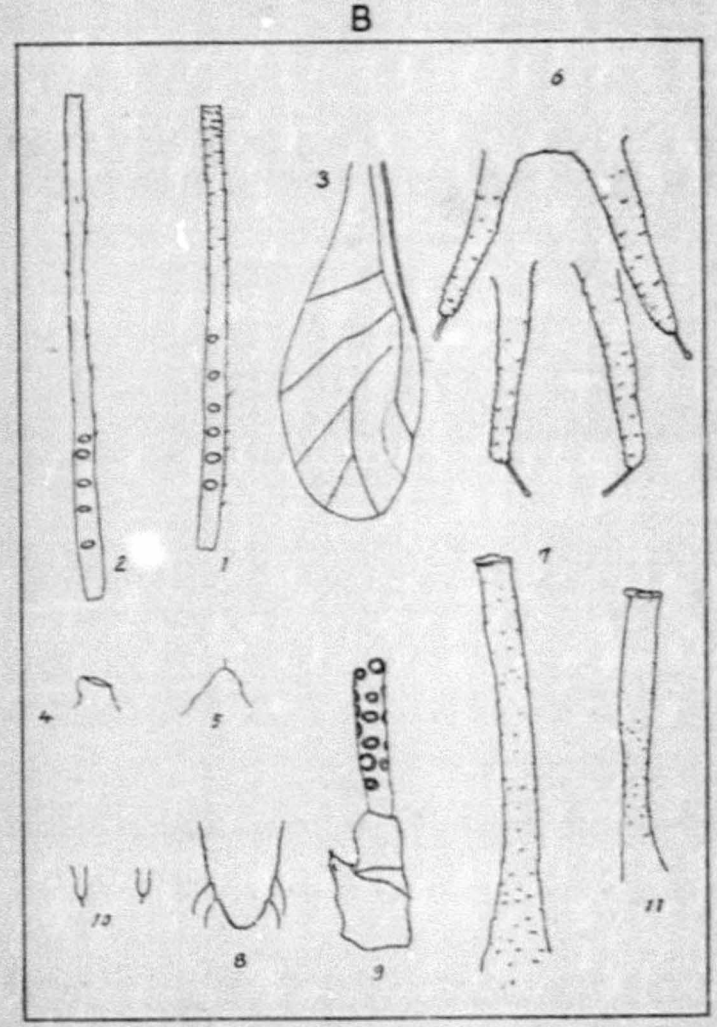
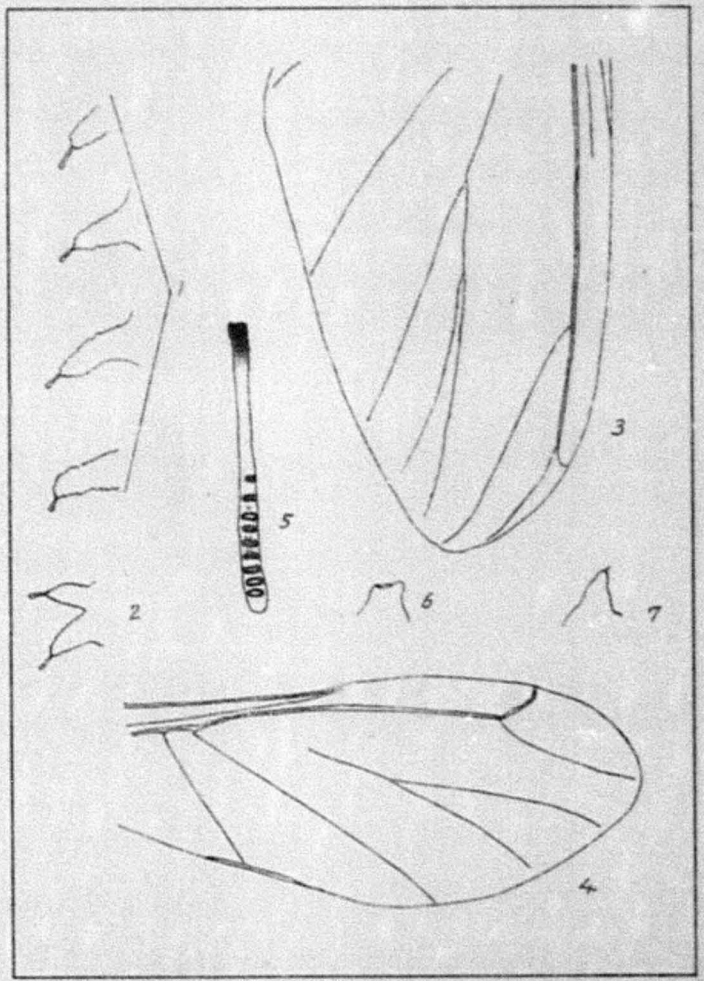


Plate II

A



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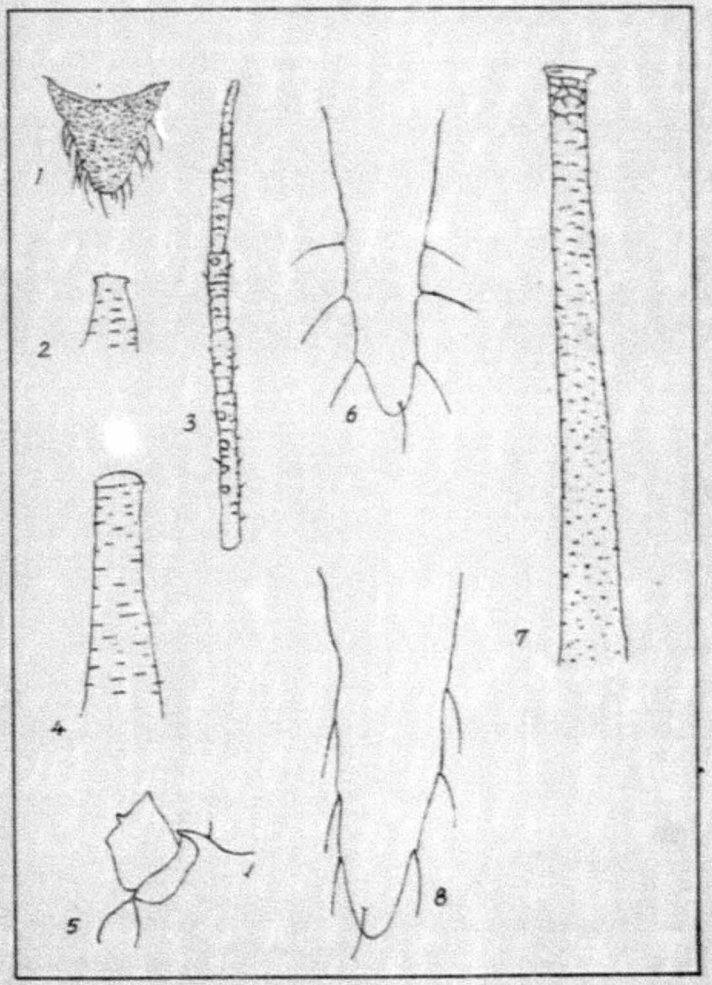

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